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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,692	03/13/2001	Julian A. Fells	678-1192	4489

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EXAMINER
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LI, SHI K

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/805,692

Applicant(s)

FELLS ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 44 and 46-65 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 44,46,49-65 is/are rejected.  
7) ☒ Claim(s) 47 and 48 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 52-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 52 recites the limitation "the plurality of RF signals" in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 53 recites the limitation "the plurality of RF signals" in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 44, 46, 50-51, 57-59 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (U.S. Patent Application Pub. 2001/0009467 A1) in view of Dimmick et al. (T. Dimmick et al., "Optical Dispersion Monitoring Technique Using Double Sideband Subcarriers", IEEE Photonics Technology Letters, Vol. 12, No. 7, July 2000).

Regarding claims 44 and 57, Fujita discloses in FIG. 8 a method of generating an indicative signal of chromatic dispersion. FIG. 8 comprises a fiber 801 for receiving an optical signal, a plurality of filters 818 and 814, a plurality of power detectors 810 and 812, and a identification circuit 811. Fujita teaches in paragraph [0112] a modification of FIG. 8 by

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increasing the number of power detectors and passing the signal through filters to extract different frequencies for improving the precision of the dispersion compensation monitor. Fujita teaches in paragraph [0102] that data carried by the optical fiber is in the range of 10 Gb/s, i.e., RF range. The difference between Fujita and the claimed invention is that Fujita does not specify whether the modulated signal has upper and lower sidebands. However, double sideband is the default modulation result and is commonly used. In addition, Dimmick teaches monitoring dispersion using double sideband. The spectrum of a double sideband signal is symmetrical about the carrier as illustrated in FIG. 1 of Dimmick. One of ordinary skill in the art would have been motivated to combine the teaching of Dimmick et al. with Fujita because such symmetry allows the use of the spectrum at the receiving end to determine dispersion during transmission of the data signal. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use double sideband signal, as taught by Dimmick, in the chromatic dispersion method of Fujita because the symmetrical spectrum at the transmitting end allows the use of the spectrum at the receiving end to determine dispersion during transmission of the data signal.

Regarding claims 46 and 59, Fujita teaches in FIG. 8 and paragraph [0112] a plurality of filters to sample different frequencies to improve the precision of the dispersion compensation monitor. It is obvious to one of ordinary skill in the art to select certain frequencies, for example,  $f$ ,  $1.41f$  and  $2f$ .

Regarding claim 50, Fujita teaches in FIG. 9 a photodiode and filters 814 and 818.

Regarding claims 51 and 61, Fujita teaches in FIG. 9 an adjustable chromatic dispersion device 902 controlled by a controller 920 with the signal from an identification circuit 911.

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Regarding claim 58, Fujita teaches in paragraph [0100] a PIN-PD.

7. Claims 49, 53, 60 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita and Dimmick et al. as applied to claims 44, 46, 50-51, 57-59 and 61 above, and further in view of Eggleton et al. (U.S. Patent 6,370,300 B1).

Fujita and Dimmick et al. have been discussed above in regard to claims 44, 46, 50-51, 57-59 and 61. Regarding claim 53, the difference between Fujita and Dimmick et al. and the claimed invention is that Fujita and Dimmick et al. do not teach to tap off a portion of the received signal to derive a plurality of RF signals; instead, Fujita derives the RF signals from the electrical signal. Eggleton et al. teaches in FIG. 11 to tap off a portion of the optical signal for spectrum analysis. One of ordinary skill in the art would have been motivated to combine the teaching of Eggleton et al. with the modified method of Fujita and Dimmick et al. because the approach allows independent process of the tapped off optical signal using optical filters and photodetector different from the clock/data recovery circuit. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to tap off a portion of optical signal for spectrum analysis, as taught by Eggleton et al., in the modified method of Fujita and Dimmick et al. because the approach allows independent process of the tapped off optical signal using optical filters and photodetector different from the clock/data recovery circuit.

Regarding claim 53, Eggleton et al. teaches in FIG. 11 to supply the received signal to a dispersion compensator 33 and tap off a portion of optical signal from the output of the dispersion compensator. One of ordinary skill in the art would have been motivated to combine the teaching of Eggleton et al. with the modified method of Fujita and Dimmick et al. because such arrangement compensates for dispersion and improves the received signal and the spectrum

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analysis after the dispersion compensator gives an indication of the effectiveness of the dispersion compensator so that feedback control technique can be used to optimize the operation of the dispersion compensator. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to supply the received signal to a dispersion compensator, as taught by Eggleton et al., in the modified method of Fujita and Dimmick et al. because such arrangement compensates for dispersion and improves the received signal and the spectrum analysis after the dispersion compensator gives an indication of the effectiveness of the dispersion compensator so that feedback control technique can be used to optimize the operation of the dispersion compensator.

Regarding claim 60, Eggleton et al. teaches in FIG. 11 to filter the received optical signal before detection.

Regarding claim 63, Eggleton et al. teaches in FIG. 11 to tap off a portion of the received optical signal emerging from a dispersion compensator.

#### ***Allowable Subject Matter***

8. Claims 47-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 52, 54-56, 62 and 64-65 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

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10. Applicant's arguments filed 15 April 2004 have been fully considered but they are not persuasive.

Applicant argues that Fujita does not teach or disclose, "deriving a plurality of RF signals each having a respective narrow bandwidth within the RF data spectrum". Applicant cites FIG. 8 of Fujita and argues that the use of low pass filters 814 and 818 implies Fujita could not derive RF signals having a respective narrow bandwidth. However, Fujita teaches in paragraph [0112] "Further, as another modification, the number of power detectors for the dispersion compensation monitor circuit may be increased from two to four, and filters for passing different frequencies may be inserted adjacent to the input sides of the respective power detectors ...". That is, Fujita teaches an improved version of FIG. 8 where a plurality of RF frequencies are derived.

### *Conclusion*

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl

  
LESLIE PASCAL  
PRIMARY EXAMINER